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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID ALEXANDER BALL, R. ERIC BENNETT,
MARTIN HESKETH, JOHN GALEN SCUDDER, and
DAVID D. WARD

Appeal 2009-014738
Application 10/677,797
Technology Center 2400

Before JAMESON LEE, KEVIN F. TURNER, and
JEFFREY B. ROBERTSON, *Administrative Patent Judges*.

ROBERTSON, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 from a rejection of claims 1-30. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

THE INVENTION

Appellants' invention is directed to routing protocols used in computer networks and, more particularly, to an efficient and scalable implementation of a routing protocol. (Spec. 1, ll. 3-5.)

Claim 28, reproduced below, is illustrative of the claimed subject matter:

> 28. An apparatus comprising:
>
> a switch fabric;
>
> a first processor to run a first speaker, the first speaker operable to i) handle a first set of one or more connections to one or more selected peer routers (ii) receive and store routes from those peer routers, (iii) apply inbound policy to the routes received from those peer routers and (iv) download routes received from those peer routers, except ones filtered by the inbound policy, to a Border Gateway Protocol routing information base (bRIB);
>
> a second processor, different from the first processor, to run a second speaker, the second speaker to run independently of the first speaker, the second speaker operable to i) handle a second set of one or more connections to one or more different selected peer routers (ii) receive and store routes from those peer routers, (iii) apply inbound policy to the routes received from those peer routers and (iv) download routes received from those peer routers, except ones filtered by the inbound policy, to the bRIB; and
>
> a third processor, different from the first and second processors, to run the bRIB used by both the first and second

> speakers, the bRIB to perform a first stage of route selection to compute a set of best routes from among the routes downloaded from the first and second speakers,
>
> wherein the first speaker, the second speaker and the bRIB operate to provide an appearance of a single routing protocol process.
>
> (Appeal Brief, Claims Appendix[1] 32-33.)

THE REJECTIONS

I. The Examiner rejected claims 1-9 and 11-30 under 35 U.S.C. § 103(a) as unpatentable over Norman et al. (US 7,054,311 B2, issued May 30, 2006) in view of Crump (US 6,999,454 B1, issued February 14, 2006). (Examiner's Answer, dated May 26, 2009, "Ans." 3-12.)

II. The Examiner rejected claim 10 under 35 U.S.C. § 103(a) as unpatentable over Norman in view of Crump, and further in view of Weyman et al. (US 2005/0041665 A1, published February 24, 2005). (Ans. 12.)

ISSUES

The Examiner found that Norman teaches a first processor to run a first speaker (line card) and a second processor to run a second speaker, and that both speakers were operable to complete steps (i), (ii), and (iv) recited in claim 28. (Ans. 3-4, 6-7, 13-14, 16.) With respect to step (iii) recited in claim 28, the Examiner determined that it would have been obvious to use Crump's teaching of computing the best routes for the routing table in Norman's system in order to improve router performance. (Ans. 5-6.)

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[1] Appeal Brief, Claims Appendix filed February 24, 2009, hereinafter "App. Br." and Claims App'x, respectively.

The Examiner further found that Norman teaches a third processor (in the controller card) that receives route information from two other processors (in the first and second line cards) and performs routing information base (RIB) calculations based on those received routes. (Ans. 14.) With respect to a bRIB performing a first stage of route selection to compute the best routes, the Examiner again relied on Crump. (Ans. 7-8, 14.)

With respect to claim 29, the Examiner found that neither Norman nor Crump explicitly disclose a fourth processor to run a global RIB, but determined that it would have been obvious to one of ordinary skill to operate the global RIB on a separate processor. (Ans. 15.)

Appellants contend that "Norman makes no mention of a configuration with at least three processors, with speakers on two different processors and a protocol RIB (bRIB) on a still another different processor, that still provides the appearance of a single routing protocol process to other devices." (App. Br. 18.) Appellants also argue that Norman makes no specific mention of a "first speaker" or "a second speaker." (App. Br. 18.)

Further, Appellants argue that neither Norman nor Crump teach or suggest the recited fourth processor, which is different from the first, second and third processors, to run a global RIB. (App. Br. 20.)

Thus, the dispositive issues on appeal are:

1. Whether the Examiner erred in determining that Norman in view of Crump renders obvious the three processor apparatus recited in claim 28?

2. Whether the Examiner erred in determining that Norman in view of Crump renders obvious “a fourth processor, different from the first, second and third processors, to run a global RIB that maintains a routing table for the apparatus,” as recited in claim 29?

PRINCIPLES OF LAW

In *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), the Supreme Court explained that “Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR*, 550 U.S. at 406.

In responding to a prima facie case of obviousness, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. *See In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)).

FACTUAL FINDINGS

1. Norman discloses a router (100A) that includes a number of line cards (104), each of which interface and communicate with one or more peer routers via a corresponding number of input/output interfaces (106). (Fig 1A; Col. 5, ll. 11-22.)
2. Norman discloses a number of line cards (104), including a configuration with two line cards (104α and 104β), that receive and

store routing information and transmit received routing information to a controller card. (Fig. 1A; Fig. 6; Col. 6, l. 64 – Col. 7, ll. 4; Col. 7 ll. 15-18; Col. 5, ll. 17-19.)

3. Norman discloses that each line card contains a processor (112). (Fig 1A; Fig. 6; Col. 6, ll. 65-66.)
4. Norman discloses a controller card containing a processor (CPU) (120) separate from the processor(s) disclosed for the line card(s). (Fig. 1A; Col. 7, ll. 19-22.)
5. Norman discloses that the controller card receives downloaded routing information from the line card and performs RIB analysis. (Col. 7, ll. 2-7; Col. 9, ll. 9-38.)
6. Norman discloses that multiple processors can participate concurrently in the RIB analysis. (Col. 11, ll. 20-23.)
7. Norman discloses distributing computational complexity among multiple processing units, thereby allowing computation of output RIBs and forwarding tables to occur in parallel. (Abstract, ll. 13-19.)
8. Crump discloses a router that utilizes multiple processing cards to implement logic that determines and distributes routes; and to forward information within the router. (Col. 2, ll. 45-52; Col. 5, ll. 52-63.)
9. Crump discloses a router that includes a distributed routing table manager and a routing table that is distributed across multiple processing cards. (Col. 5, ll. 59-60; Col. 6, ll. 30-32.)

ANALYSIS

Initially, we observe that Appellants' arguments against each of the independent claims subject to Rejection I raise the same or similar issues. As such, our analysis will focus on representative claim 28, which contains claim limitations representative of the arguments made by Appellants pursuant to 37 C.F.R. § 41.37(c)(l)(vii). Further, Appellants have not presented separate arguments for Rejection II, but instead rely on the arguments presented for Rejection I. (App. Br. 22.) Therefore, our comments regarding Rejection I apply equally to Rejection II.

Issue one

We are unpersuaded by Appellants' argument that Norman does not disclose the three-processor configuration recited in Appellants' claims. To the contrary, we agree with the Examiner that Norman discloses a router that includes a number of line cards, including a specific example of a router having two line cards in Figure 6, where, each line card has a processor (i.e., first and second processor), and a controller card having a separate and different processor (i.e., third processor) from the line card processors. (Ans. 13; FF 1-4.) Additionally, the line cards of Norman, similar to the "speakers" of the instant invention, handle connections to one or more peer routers (FF 1), receive and store routes from those peer routers (FF 2), and download those routes to the controller card, which performs an RIB analysis. (FF 2, 5.) Thus, we find that the functions provided by the line cards of Norman are equivalent to the speakers of the instant claims.

Accordingly, Appellants' argument that Norman makes no specific mention of a "first speaker" or "a second speaker" has no merit. Therefore, we agree with the Examiner that Norman in view of Crump renders obvious the three processor apparatus recited in claim 28.

Issue two

We are also not persuaded by Appellants' argument that Norman in view of Crump does not render obvious the recited fourth processor to run a global RIB. (App. Br. 20) In so arguing, Appellants merely argue Norman and Crump individually, rather than the Examiner's rejection, which is based on the combination of Norman and Crump. *See In re Merck*, 800 F.2d at 1097. Specifically, Appellants do not address the Examiner's determination that Crump's teaching of a global route list, as well as Norman's suggestion of parallel processing, would have rendered obvious the addition of a fourth processor to run a global RIB. (Ans. 11-12, 15.) Because both Norman and Crump teach that the use of parallel processing is a well-known solution to the scalability problems associated with routing of network data (FF 7-9), the basis for the Examiner's rejection is supported by the evidence of record. Accordingly, we agree with the Examiner that adding a fourth processor to run a global RIB would have been obvious to one of ordinary skill in the art.

CONCLUSIONS

The Examiner did not err in determining that Norman in view of Crump renders obvious the three processor apparatus recited in claim 28.

The Examiner did not err in determining that Norman in view of Crump renders obvious “a fourth processor, different from the first, second and third processors, to run a global RIB that maintains a routing table for the apparatus,” as recited in claim 29.

DECISION

We affirm the Examiner’s rejection of claims 1-9 and 11-30 under 35 U.S.C. § 103(a) as unpatentable over Norman in view of Crump.

We affirm the Examiner’s rejection of claim 10 under 35 U.S.C. § 103(a) as unpatentable over Norman in view of Crump, and further in view of Weyman.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1).

AFFIRMED

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